The influence of bio-demographic, socio-economic and intermediate variables on fertility behaviour of currently married women in Zambia

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Abstract

Undesirable fertility behaviours are detrimental to maternal health. Zambia is one country battling with fertility behaviours such as early marriage, high parity, shorter birth intervals, and low contraceptive use, all of which contribute to high fertility. The study used pooled data from three (2007-2018) Zambia Demographic Health Surveys to establish the factors associated with married womens fertility behaviour in Zambia. The Poisson regression results show that besides some bio-demographic and socioeconomic factors influence fertility behaviour, this study reveals that intermediate variables such as women marrying at the age of 18 or older (IRR = 0.96 CI: 0.95 - 0.97) and using any type of contraception (IRR = 0.99 CI: 0.98 - 1.00) reduces the risk of women having more children ever born. Therefore, policies and programs focused at tackling fertility behaviours in countries with stalled fertility transitions, such as Zambia, should include activities that address the intermediate variables.

Introduction

Globally, the population was estimated to have reached 8 billion in 2022, an increase of 1 billion over the estimate for the year 2010 (United Nations Department for Economic and Social Affairs, 2023). The increase might be attributed to undesirable fertility behaviours (FBs) in regions like sub-Saharan Africa (SSA) and Zambia in particular (Bongaarts, 2020; Palamuleni, 2023). FBs refers to a woman's patterns of childbirth, number and timing of births and the use of contraceptives (Tessema & Tamirat, 2020). If significant progress is to be made, factors influencing FB must be addressed in view of the poor maternal and child health outcomes such as anaemia, morbidity, and mortality (Okyere et al., 2022). Zambia is one of the nation's having a high fertility rate within the SSA region. Even though the TFR has decreased, it has done so extremely slowly, reducing from 6.5 in 1992 to 4.7 in 2018, a rate that is greater than the estimate for the entire SSA (World Bank, 2019). The government of the republic of Zambia (GRZ) has invested in family planning (FP) since 1970 and continues to do so as evidence in the FP 2030 developed to address access to FP services (GRZ, 2022). However, despite all these efforts ZDHS of 2018 indicates that: 50% of the women are married before they turn 19 years, only 48% of married women are using modern methods of contraception of which, 20% of married women have unmet need for contraception (Namukoko et al., 2022). Further, Abortion rate stands at 45%, with unintended pregnancies ending in abortion rising to 28% in 2018 from 19% in 1992 (Guttmacher Institute, 2021). Though some studies have been conducted in Zambia, on fertility and associated factors (Chola & Michelo, 2016; Munakampe et al., 2021; Odimegwu et al., 2015) none of these studies tried to understand how the bio-demographic, socio-economic and intermediate variables as hypothesised by Davis and Blake interact to influence fertility behaviour as measured by children ever born among married women in Zambia.

Methods: The study utilised cross-sectional pooled data from three rounds of the Zambia Demographic Health Surveys (2007, 2013-14 and 2018) consisting of 18,219 weighted sampled of married women. The main outcome variable is fertility behaviour as measured by children ever born. Data was analysed using Stata 14.2 by producing descriptive statistics to determine factors associated with fertility behaviour. Further, the Poisson regression analysis was employed to determine which among the many bio-demographic, socio-economic and intermediate variables explains the observed fertility behaviours among married women in Zambia.

Factors associate fertility behaviour among married women in Zambia

The prevalence of risky-fertility behaviour among married women is high in Zambia, with 19% and 79% of the births resulting from single and multiple risky-fertility behaviours. Table 1 below shows that the likelihood of married women having more children increases with age. Women who marry at 18 years or older and have their first sexual intercourse at 18 years or older had a lower incidence rate of having more children (0.90 and 0.96, respectively). Married women with 1 to 2 or 3 or more living children have 1.16 and 1.52 times the incidence rate of having more children than those with no children at all. Women with an undetermined fertility preference or have no more children have a lower incidence rate of children ever born than those whose preference is have another child (0.92 and 0.96, respectively). Equally, women with 4 or less or 5 or more ideal number of children and sex preference for a boy child had a lower incidence rate of having another child being born. Furthermore, married women with birth orders 4 or more have a 1.62 incidence rate of having more children than those with 3 or less children. Likewise, women with a birth spacing of 24 months or more have a 0.94 lower chance of having more children. The model further reveals that, the number of CEB decreased as the level of education attained by women increased. Other socio-economic characteristics that were significantly associated with married women's number of children ever born were the wealth index, place of delivery, obtaining postnatal care within two days of delivery, province of domicile, and place of residence. In terms of the relationship between married women's intermediate variables, results show that women who married at or after the age of 18 and used contraception have a lower incidence rate of having a higher number of children ever born than those who married before the age of 18 or did not use contraception (0.96 and 0.99) respectively.

Table 1: Adjusted Incidence Rate Ratios of the demographic, socio-economic and intermediate factors associated fertility behaviour as measured by children ever born in Zambia from 2007 - 2018

Variables	Full Model	
	AIRRs	CI
Age of respondent		
15-19	1	
20-24	1.16***	1.14 - 1.19
25-29	1.29***	1.26 - 1.32
30-34	1.50***	1.46 - 1.54
35-39	1.81***	1.76 - 1.86
40-44	2.13***	2.06 - 2.19
45-49	2.38***	2.29 - 2.46
Age at first birth		
Less than 18 years	1	
18 years or more	0.90***	0.89 - 0.91
Age at first sexual intercourse		
Less than 18 years	1	
18 years or more	0.98**	0.97 - 0.99
Marriage to first birth		
12 Months or less	1	
More than 12 months	0.98***	0.97 - 0.99
Number of living Children		
None	1	
1-2 children	0.96	0.84 - 1.11
3 or more children	1.21**	1.06 - 1.40

Fertility preference		
Have another	1	
Undecided	0.91***	0.90 - 0.93
No more	0.95***	0.93 - 0.97
Ideal number of children		
None	1	
4 or less	0.92***	0.90 - 0.94
5 or more	0.97*	0.95 - 0.99
Sex preference		
No preference	1	
Girl child	1.00	0.98 - 1.01
Boy child	0.99*	0.97 - 1.00
Birth order		
3 or less	1	
4 or more	1.46***	1.44 - 1.48
Birth Interval		
Less than 24 months	1	
24 months or more	0.92***	0.91 - 0.94
Media exposure		
No exposure	1	
Exposed	1.01	1.00 - 1.02
Access to family planning		
No access to family planning message	1	
Access to family planning messages	1	0.98 - 1.01
Educational level		
No education	1	
Primary	0.99*	0.97 - 1.00
Secondary	0.94***	0.93 - 0.96
Higher	0.87***	0.84 - 0.89
Currently working		
No	1	
Yes	1.01	1.00 - 1.02
Wealth index		
Poor	1	
Middle	0.98**	0.97 - 1.00
Rich	0.96***	0.94 - 0.97
ANC visit		
No visit	1	
< 8 times	1.02	0.99 - 1.05
8+ times	1.00	0.97 - 1.03
Place of deliver		
Home	1	
Health facility	0.98***	0.97 - 0.99
Postnatal care within 2 days for last birth		
No	1	
Yes	0.99*	0.98 - 1.00
Health insurance		
No	1	
Yes	1	0.97 - 1.02
Religion		
Catholic	0.99	0.96 - 1.03
Protestant	1	0.97 - 1.04
Other	1	
Province		
Central	1.03**	1.01 - 1.05
Copperbelt	1.02	1.00 - 1.04
Eastern	1.01	0.99 - 1.03
Luapula	1.03**	1.01 - 1.06
Lusaka	1	
Muchinga	0.98*	0.95 - 1.00
Northern	1.01	0.99 - 1.04
Northwestern	1.03**	1.01 - 1.06
Southern	1.02*	1.00 - 1.04
Western	1.01	0.99 - 1.03
Place of residence		
Urban	1	
Rural	1.04***	1.02 - 1.05
Age at first marriage		
Less than 18 years	1	
18 years or more	0.96***	0.95 - 0.97
Contraception use		
Not using	1	
Using	0.99**	0.98 - 1.00
Ever had an abortion		
No	1	

| Yes | | | 1.0 | 0.99 - 1.02 |

Discussion

The findings of the study highlights the fact that high-risky fertility behaviour is quiet high among married women in Zambia with 19% and 79% of the births resulting from single and multiple risky-fertility behaviours which may perpetuate the high number of children ever born and endangers womens health . However, it should be noted that when various bio-demographic, socio-economic and intermediate factors explain the observed FBs as measured by number of CEB. For example, entering marital unions early, lower age at first sexual intercourse, having a boy child, higher birth intervals, residing in middle and rich households, delivering from health facilities, receiving postnatal care within two days of delivery, residing in urban areas, marrying at age 18 years or higher and using of any contraception improves married womens FBs.

Conclusions

Study findings highlights the importance of bio-demographic, socio-economic and intermediate variables in explain fertility behaviour in stalled fertility transition countries like Zambia. Therefore, policies and programmes need to continuously included activities that promote access to comprehensive FP services and equally allow for more choices for women to advance their careers thereby indirectly increasing the age at which they enter the marital unions while continuing with addressing the many bio-demographic and socio-economic factors that perpetuates undesirable FBs,

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